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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 0714* .

2a)☒ This action is **FINAL**.　　2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

　　If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some * c)☐ None of:

　　1.☐ Certified copies of the priority documents have been received.

　　2.☐ Certified copies of the priority documents have been received in Application No. _____ .

　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).
　　* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

　　a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: .

DETAILED ACTION

Response to Amendment

1.   This Office Action is in response to the Amendment filed 07/14/03. Claims 1-47 are

pending. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

3.   Claim 16 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

- Claim 16 recites the limitation "the ISDN traffic" in line 2 of the claim. There is

insufficient antecedent basis for this limitation in the claim. The claim will be examined

changing "the ISDN traffic" to "ISDN traffic."

- Claim 17 recites the limitation "the destination element" in line 7 of the claim. There is

insufficient antecedent basis for this limitation in the claim. The claim will be examined

assuming the "destination element" is the "disparate element" from lines 4-5 of claim 17.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 1, 3, 6, 11-15, 17, 18, 20, 22, 24, 29, 30, 32, 34-37, 39, 41, 43, 44, and 46 are

rejected under 35 U.S.C. 102(e) as being anticipated by Humphrey (USP 6,320,877).

-Referring to Claim 1, Humphrey discloses a synchronous bus for a telecommunications

node (col. 2, lns. 13-23), the bus comprising: a frame repeating at a defined interval (Fig. 12, col.

15, lns. 15-35); each frame comprising of a plurality of bus slots (service channels, Fig. 12); a

bus slot containing individual DS-0 channels (service channel) in at least one frame individually

transporting traffic for a DS-0 connection (Fig. 15, col. 16, lns. 35-43); and a set of bus slots

(service channels, a set can be one or more items) in the frame together transporting an

asynchronous transfer mode (ATM) cell (abstract, Fig. 18, col. 2, lns. 13-23, col. 14, lns. 45-60,

col. 15, lns. 50-60).

- Referring to Claim 3, Humphrey discloses the bus of Claim 1, further comprising: a

point-to-point link between each line card and a switch (core) of a telecommunications node; and

each point-to-point link comprising the frame repeating at the defined interval (col. 5, lns. 55-col.

6, lns. 8, col. 15, lns. 15-35).

- Referring to Claim 6, Humphrey discloses the bus of Claim 1, the set of bus slots

(service channels) further comprising a block of contiguous bust slots (service channels, Fig. 12).

- Referring to Claim 11, Humphrey discloses the bus of Claim 1, further comprising: each

frame further comprising an frame header (overhead portion); the overhead portion comprising

routing and administrative data (an internode communication channel, col. 5, lns. 9-31); and the

routing and administrative data (internode communication channel) in at least one frame

transporting control traffic generated by a line card of a telecommunications node transmitting the frame and destined for a disparate element of the telecommunications node (col. 5, lns. 57-col. 6, lns. 7).

- Referring to Claim 12, Humphrey discloses the bus of Claim 11, wherein the disparate element of the telecommunications node comprises a disparate circuit card (line card, col. 6, lns. 1-7).

- Referring to Claim 13, Humphrey discloses the bus of Claim 11, wherein the disparate element of the telecommunications node comprises a switch (card, col. 6, lns. 1-7).

- Referring to Claim 14, Humphrey discloses a telecommunications node, comprising: a line card operable to generate a frame including a plurality of bus slots (service channels) with DS-0 channels each sized to individually transport DS-0 traffic (col. 16, lns. 23-42) and in connection with other bus slots (service channels) to transport an ATM cell in a bus slot (col. 15, lns. 50-60) to insert DS-0 traffic and ATM cells into the bus slots (service channels, col. 2, lns. 13-22, col. 14, lns. 25-35), and to repeat the frame at a defined interval on a bus (Fig. 12, col. 15, lns. 15-35); and the switch (core) operable to receive the frame from the synchronous bus and to synchronously switch the DS-0 traffic and the ATM cells (col. 2, lns. 13-23, col. 5, lns. 55-col. 6, lns. 7, col. 14, lns. 25-35).

- Referring to Claim 15, Humphrey discloses the telecommunications node of Claim 14, further comprising the line card operable to repeat the frame on a point-to-point link between the line card and the switch core (col. 5, lns. 55-col. 6, lns. 7).

- Referring to Claim 17, Humphrey discloses the telecommunications node of Claim 14, wherein each frame of the bus comprises a header (an overhead portion) including routing

information for control information to be sent to other devices (an internode communication channel, col. 15, lns. 60-col. 16, lns. 5) further comprising: the line card operable to generate control traffic destined for a disparate element of the telecommunications node, to insert the control traffic into the frame header (internode communication channel) of a frame and to transmit the frame to the switch (core); and the switch (core) operable to switch the control traffic to the destination element based on the position of the bits in the device address control traffic field in the header (internode communication channel, Fig. 12, col. 5, lns. 55-col. 6, lns. 7, col. 15, lns. 60-col. 16, lns. 5).

- Referring to Claim 18, Humphrey discloses a method for communicating traffic between elements in a telecommunications node, comprising: repeating a frame at a defined interval on a synchronous bus (Fig. 12), providing a plurality of bus slots (service channel) in each frame; in at least one frame, individually transporting traffic for a DS-0 connection in a single DS-0 service channel (col. 16, lns. 35-43); in the frame, transporting an asynchronous transfer mode (ATM) cell in a set of bus slots (service channels, a set can be one or more items); and synchronously switching the DS-0 traffic and the ATM cell in the frame (col. 14, lns. 24-35).

- Referring to Claim 20, Humphrey discloses the method of Claim 18, wherein the synchronous bus comprises a point-to-point link, further comprising repeating the frame at a defined interval on a point-to point link (col. 15, lns. 15-33).

- Referring to Claim 22, Humphrey discloses the method of Claim 18, further comprising transporting the ATM cell in a block of contiguous bus slots (service channels, col. 15, lns. 50-60).

- Referring to Claim 24, Humphrey discloses the method of Claim 18, further

comprising: providing in each frame a header (an overhead portion) including information for

routing command data (an internode communication channel, Fig. 12); generating control traffic

at a line card of a telecommunications node; inserting the control traffic into the frame header (an

internode communication channel) of the frame; transmitting the frame from the line card to a

switch (core) of the telecommunications node; and synchronously switching the control traffic at

the switch core to a destination element in the telecommunications node based on a position of

the bits in the device address field control traffic in the frame header (in the internode

communication channel, col. 5, lns. 55-col. 6, lns. 7, col. 15, lns. 60-col. 16, lns. 5).

- Referring to Claim 29, Humphrey discloses a line card for a telecommunications node,

comprising: a port operable to receive traffic from an external link (col. 5, lns. 55-col. 6, lns. 7);

an internal interface operable to connect to a point-to-point link of a synchronous bus (col. 5, lns.

55-col. 6, lns. 7); and a traffic processor operable to generate a frame comprising a frame header

(an overhead portion) with information for routing command data (an internode communication

channel, col. 5, lns. 9-22, Fig. 12) and a service traffic portion comprising a plurality of bus slots

(service channels, Fig. 12), the bus slots having a plurality of DS-0 service channels each sized

to individually transport DS-0 traffic (col. 16, lns. 35-42), to generate control traffic destined for

a disparate element in the telecommunications node, to insert the control traffic into a frame

header slot for sending command data to the devices (in the internode communication channel)

associated with the disparate element (col. 15, lns. 60-col. 16, lns. 5), to insert traffic received at

the port into the bus slots (service channels), and to transmit the frame on the point-to-point link

of the synchronous bus (col. 5, lns. 55-col. 6, lns. 7).

- Referring to Claim 30, Humphrey discloses the line card of Claim 29, the traffic processor further operable to insert synchronous and asynchronous traffic into the bus slots (service channels, col. 2, lns. 13-23).

- Referring to Claim 32, Humphrey discloses the line card of Claim 29, the traffic processor further operable to insert an asynchronous transfer mode (ATM) cell into a set of bus slots (service channels, a set can be one or more items) associated with a destination element for the ATM cell within the telecommunications node (col. 2, lns. 13-23, col. 18, lns. 50-60).

- Referring to Claim 37, Humphrey discloses a system for communicating traffic between elements in a telecommunications node, comprising: a computer-readable medium; and software stored on the computer-readable medium (col. 17, lns. 20-30), the software operable to repeat a frame at a defined interval on a synchronous bus (Fig. 12), to provide a plurality of bus slots (service channels, Fig. 12) in each frame, the plurality of bus slots having DS-0 service channels each sized to individually transport DS-0 traffic (col. 16, lns. 35-42), to transmit in at least one frame traffic for a DS-0 connection in a single bus slot (service channel, col. 16, lns. 35-45), to transmit in the frame an asynchronous transfer mode (ATM) cell in a set of bus slots (service channels, col. 2, lns. 13-23), and to synchronously switch DS-0 traffic and ATM cells received in a frame (Fig. 10, lns. 25-35).

- Referring to Claim 39, Humphrey discloses the system of Claim 37, wherein the synchronous bus comprises a point-to-point link, the software further operable to repeat the frame at a defined interval on the point-to-point link (Fig. 12, col. 15, lns. 15-33).

- Referring to Claim 41, Humphrey discloses the system of Claim 37, the software further

operable to transmit the ATM cell in a block of contiguous bytes in a bus slot (service channels,

col. 18, lns. 50-60).

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

7.   Claim 2, 7, 19, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Humphrey in view of Sutherland (USP 5,594,576).

- Referring to Claim 2, Humphrey discloses the bus of Claim 1, wherein the defined

interval comprises 125 microseconds (col. 15, lns. 15-35), but does not expressly disclose each

service channel is two bytes in size. Sutherland discloses a system where DS-0 channels are

sixteen bits wide, which is equivalent to two bytes (col. 5, lns. 18-26). The system of Humphrey

could be modified so that the DS-0 channels are two bytes wide. At the time the invention was

made, it would have been obvious to one of ordinary skill in the art to make the service channel

two bytes wide. One of ordinary skill in the art would have been motivated to do this since it

would be able to hold additional frame information, such as the ABCD signaling highway and

frame synchronization information (col. 5, lns. 18-26).

- Referring to Claim 7, Humphrey discloses the bus of Claim 6, wherein the defined

interval comprises 125 microseconds (Fig. 12), but does not expressly disclose each service

channel is two bytes in size. Sutherland discloses a system where DS-0 channels are sixteen bits wide, which is equivalent to two bytes (col. 5, lns. 18-26). The system of Humphrey could be modified so that the DS-0 channels are two bytes wide. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to make the service channel two bytes wide. One of ordinary skill in the art would have been motivated to do this since it would be able to hold additional frame information, such as the ABCD signaling highway and frame synchronization information (col. 5, lns. 18-26). Humphrey and Sutherland do not expressly disclose the contiguous block of service channels is 27 channels. Humphrey discloses the bus slots (service channels) can be any number of slots (col. 15, lns. 35-50). It would be obvious to one of ordinary skill in the art to select any number of bus slots in the frame. One of ordinary skill in the art would have been motivated to do this since as the number of bus slots increase, the amount of data used in frame overhead decreases compared to the amount of data transmitted, thus overall output efficiency increases.

- Referring to Claim 19, Humphrey discloses the method of Claim 18, further comprising repeating the frame at 125 microsecond intervals (Fig. 12), but does not expressly disclose wherein the service channel is two bytes in size. Sutherland discloses a system where DS-0 channels are sixteen bits wide, which is equivalent to two bytes (col. 5, lns. 18-26). The system of Humphrey could be modified so that the DS-0 channels are two bytes wide. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to make the service channel two bytes wide. One of ordinary skill in the art would have been motivated to do this since it would be able to hold additional frame information, such as the ABCD signaling highway and frame synchronization information (col. 5, lns. 18-26).

- Referring to Claim 38, Humphrey discloses the system of Claim 37, the software

operable to repeat the frame at 125 microsecond intervals, but does not expressly disclose

wherein the service channel is two bytes in size (Fig. 12), Sutherland discloses a system where

DS-0 channels are sixteen bits wide, which is equivalent to two bytes (col. 5, lns. 18-26). The

system of Humphrey could be modified so that the DS-0 channels are two bytes wide. At the

time the invention was made, it would have been obvious to one of ordinary skill in the art to

make the service channel two bytes wide. One of ordinary skill in the art would have been

motivated to do this since it would be able to hold additional frame information, such as the

ABCD signaling highway and frame synchronization information (col. 5, lns. 18-26).

8.   Claims 4, 5, 21, 25, 26, 31 and 40 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Humphrey in view of O'Connell (USP 5,398,234).

- Referring to Claim 4, Humphrey discloses the bus of Claim 1, the service channel

transporting traffic for the DS-0 connection but does not expressly disclose further comprising a

current channel associated signaling (CAS) value for the DS-0 connection. O'Connell discloses

a system with a DS-0 connection with a CAS value (abstract). The system of Humphrey could

be modified so that the DS-0 channel uses channel associated signaling. At the time the

invention was made, it would have been obvious to one of ordinary skill in the art for the DS-0

connection to have a CAS value. One of ordinary skill in the art would have been motivated to

do this since is can be used for digitizing voice in-band signaling not normally used for data

transmission (abstract).

- Referring to Claim 5, Humphrey discloses the bus of Claim 1, further comprising every

service channel transporting traffic for a DS-0 connection but does not expressly disclose a

current channel associated signaling (CAS) value for the DS-0 connection. O'Connell discloses

a system with a DS-0 connection with a CAS value in every channel (abstract, col. 1, lns. 1-30).

The system of Humphrey could be modified so that the DS-0 channel uses channel associated

signaling. At the time the invention was made, it would have been obvious to one of ordinary

skill in the art for the DS-0 connection to have a CAS value. One of ordinary skill in the art

would have been motivated to do this since is can be used for digitizing voice in-band signaling

not normally used for data transmission (abstract).

- Referring to Claim 21, Humphrey discloses the method of Claim 18, but does not

expressly disclose claim 18 further comprising transporting in-band a current channel associated

signaling (CAS) value for the DS-0 connection in the service channel for the DS-0 connection.

O'Connell discloses a system with a DS-0 connection with a CAS value (abstract, col. 1, lns. 1-

30). The system of Humphrey could be modified so that the DS-0 channel uses channel

associated signaling. At the time the invention was made, it would have been obvious to one of

ordinary skill in the art for the DS-0 connection to have a CAS value. One of ordinary skill in

the art would have been motivated to do this since is can be used for digitizing voice in-band

signaling not normally used for data transmission (abstract).

- Referring to Claim 25, Humphrey discloses a telecommunications signal transmitted on

a synchronous bus of a telecommunications node, comprising: a frame transmitted in a 125

microsecond interval (col. 2, lns. 13-23, Fig. 12); the frame comprising a plurality of bus slots

(service channels); a bus slot (service channel) with DS-0 channels individually transporting

traffic for a DS-0 connection (col. 16, lns. 35-43), and a bus slot with a block of contiguous bytes

(service channels) together transporting an asynchronous transfer mode (ATM) cell (col. 14, lns.

25-35), the block of contiguous bytes in the bus slot (service channels) located at a position in

the frame associated with a destination element for the ATM cell (col. 14, lns. 60-68), but does

not expressly disclose the bus slot (service channel) including a current channel associated

signaling (CAS) value for the DS-0 connection. O'Connell discloses a system with a DS-0

connection with a CAS value (abstract, col. 1, lns. 1-30). The system of Humphrey could be

modified so that the DS-0 channel uses channel associated signaling. At the time the invention

was made, it would have been obvious to one of ordinary skill in the art for the DS-0 connection

to have a CAS value. One of ordinary skill in the art would have been motivated to do this since

is can be used for digitizing voice in-band signaling not normally used for data transmission

(abstract).

- Referring to Claim 26, Humphrey discloses the telecommunications signal of Claim 25,

the frame further comprising frame header (an overhead portion) including header data (an

internode communication channel, Fig. 12), the header data (internode communication channel)

comprising: control traffic generated by a line card transmitting the frame; and the control traffic

located at a position in the frame header (internode communication channel) associated with a

destination element for the control traffic (col. 5, lns. 9-22, lns. 55-col. 6, lns. 7).

- Referring to Claim 31, Humphrey discloses the line card of Claim 29, the traffic

processor further operable to insert DS-0 traffic (col. 16, lns. 35-43), but does not expressly

disclose a current channel associated signaling (CAS) value for the DS-0 traffic into a service

channel. O'Connell discloses a system with a DS-0 connection with a CAS value (abstract, col.

1, lns. 1-30). The system of Humphrey could be modified so that the DS-0 channel uses channel

associated signaling. At the time the invention was made, it would have been obvious to one of

ordinary skill in the art for the DS-0 connection to have a CAS value. One of ordinary skill in

the art would have been motivated to do this since is can be used for digitizing voice in-band

signaling not normally used for data transmission (abstract).

- Referring to Claim 40, Humphrey discloses the system of Claim 37, but does not

expressly disclose the software further operable to transmit in-band a current channel associated

signaling (CAS) value for the DS-0 connection in the service channel for the DS-0 connection.

O'Connell discloses a system with a DS-0 connection with a CAS value (abstract, col. 1, lns. 1-

30). The system of Humphrey could be modified so that the DS-0 channel uses channel

associated signaling. At the time the invention was made, it would have been obvious to one of

ordinary skill in the art for the DS-0 connection to have a CAS value. One of ordinary skill in

the art would have been motivated to do this since is can be used for digitizing voice in-band

signaling not normally used for data transmission (abstract).

9.   Claims 8, 9, 16, 23, 33 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Humphrey in view of Rustad (USP 6,009,106).

- Referring to Claim 8, Humphrey discloses the bus of Claim 1, the set of service

channels comprising a first set of service channels, but does not expressly disclose a second set

of service channels together transporting traffic for an integrated services digital network (ISDN)

connection. Rustad discloses a system with DS-0 channels to carry an ISDN connection (col. 3,

lns. 64-col. 4, lns. 5). The system of Humphrey could be modified so that the DS-0 channels can

be used to carry ISDN data. At the time the invention was made, it would have been obvious to

one of ordinary skill in the art to combine the system of Humphrey, with the ability to support

ISDN. One of ordinary skill in the art would have been motivated to do this since ISDN

technology can be used to provide dynamic bandwidth allocation between switched data and

unswitched data on the local loop (col. 4, lns. 5-10).

- Referring to Claim 9, Humphrey and Rustad disclose the bus of Claim 8, but do not

expressly disclose the second set of service channels further comprising a block of contiguous

service channels together transporting two B-channels and a D-channel of the ISDN connection.

Rustad discloses a system with DS-0 channels to carry an ISDN connection with DS-0 channels

containing the ISDN B and D-channels (col. 3, lns. 64-col. 4, lns. 5). The system of Humphrey

could be modified so that the DS-0 channels can be used to carry ISDN B and D channels, which

are standard to ISDN. At the time the invention was made, it would have been obvious to one of

ordinary skill in the art to combine the system of Humphrey, with the ability to support ISDN B

and D-channels. One of ordinary skill in the art would have been motivated to do this since

ISDN technology can be used to provide dynamic bandwidth allocation between switched data

and unswitched data on the local loop (col. 4, lns. 5-10).

- Referring to Claim 16, Humphrey discloses the telecommunications node of Claim 14,

but does not expressly disclose wherein each bus slot (service channel) is sized to transport in

connection with other bus slots (service channels) ISDN traffic, further comprising: the line card

operable to insert the integrated services digital network (ISDN) traffic into bus slots (service

channels); and the switch (core) operable to synchronously switch the ISDN traffic. Rustad

discloses a system with DS-0 channels to carry and switch ISDN traffic (abstract, col. 3, lns. 64-

col. 4, lns. 5). The system of Humphrey could be modified so that the DS-0 channels can be

used to carry ISDN data. At the time the invention was made, it would have been obvious to one

of ordinary skill in the art to combine the system of Humphrey, with the ability to support ISDN.

One of ordinary skill in the art would have been motivated to do this since ISDN technology can

be used to provide dynamic bandwidth allocation between switched data and unswitched data on

the local loop (col. 4, lns. 5-10).

- Referring to Claim 23, Humphrey discloses the method of Claim 18, but does not

expressly disclose claim 18 further comprising transporting traffic for an integrated services

digital network (ISDN) connection in a second set of service channels of the frame. Rustad

discloses a system with DS-0 channels to carry an ISDN connection (col. 3, lns. 64-col. 4, lns. 5).

The system of Humphrey could be modified so that the DS-0 channels can be used to carry

ISDN data. At the time the invention was made, it would have been obvious to one of ordinary

skill in the art to combine the system of Humphrey, with the ability to support ISDN. One of

ordinary skill in the art would have been motivated to do this since ISDN technology can be used

to provide dynamic bandwidth allocation between switched data and unswitched data on the

local loop (col. 4, lns. 5-10).

- Referring to Claim 33, Humphrey discloses the line card of Claim 29, the traffic

processor further operable to insert integrated services digital network (ISDN) traffic into a set of

service channels. Rustad discloses a system with DS-0 channels to carry an ISDN connection

(col. 3, lns. 64-col. 4, lns. 5). The system of Humphrey could be modified so that the DS-0

channels can be used to carry ISDN data. At the time the invention was made, it would have

been obvious to one of ordinary skill in the art to combine the system of Humphrey, with the

ability to support ISDN. One of ordinary skill in the art would have been motivated to do this

since ISDN technology can be used to provide dynamic bandwidth allocation between switched

data and unswitched data on the local loop (col. 4, lns. 5-10).

- Referring to Claim 42, Humphrey discloses the system of Claim 37, but does not

expressly disclose the software further operable to transmit traffic for an integrated services

digital network (ISDN) connection in a second set of service channels of the frame. Rustad

discloses a system with DS-0 channels to carry an ISDN connection (col. 3, lns. 64-col. 4, lns. 5).

The system of Humphrey could be modified so that the DS-0 channels can be used to carry

ISDN data. At the time the invention was made, it would have been obvious to one of ordinary

skill in the art to combine the system of Humphrey, with the ability to support ISDN. One of

ordinary skill in the art would have been motivated to do this since ISDN technology can be used

to provide dynamic bandwidth allocation between switched data and unswitched data on the

local loop (col. 4, lns. 5-10).

10.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey and

Rustad as applied to claim 9 above, and further in view of Sutherland.

- Referring to Claim 10, Humphrey discloses the bus of Claim 9, wherein the defined

interval comprises 125 microseconds, but does not expressly disclose each service channel is two

bytes in size. Sutherland discloses a system where DS-0 channel are sixteen bits wide, which is

equivalent to two bytes (col. 5, lns. 18-26). The system of Humphrey could be modified so that

the DS-0 channel is two bytes wide. At the time the invention was made, it would have been

obvious to one of ordinary skill in the art to make the service channel two bytes wide. One of

ordinary skill in the art would have been motivated to do this since it would be able to hold

additional frame information, such as the ABCD signaling highway and frame synchronization

information (col. 5, lns. 18-26).

11.   Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Humphrey and O'Connell as applied to claim 25 above, and further in view of Rustad.

        - Referring to Claim 27, Humphrey discloses the telecommunications signal of Claim 25,

a set of bus slots (service channels) together transporting traffic, but does not expressly disclose

the traffic is for an integrated services digital network (ISDN) connection. Rustad discloses a

system with DS-0 channels to carry an ISDN connection (col. 3, lns. 64-col. 4, lns. 5). The

system of Humphrey could be modified so that the DS-0 channels can be used to carry ISDN

data. At the time the invention was made, it would have been obvious to one of ordinary skill in

the art to combine the system of Humphrey, with the ability to support ISDN. One of ordinary

skill in the art would have been motivated to do this since ISDN technology can be used to

provide dynamic bandwidth allocation between switched data and unswitched data on the local

loop (col. 4, lns. 5-10).

        - Referring to Claim 28, Humphrey discloses the telecommunications signal of Claim 27,

the set of service channels comprising a block of contiguous service channels, but does not

expressly disclose transporting two B-channels and a D-channel of the ISDN connection. Rustad

discloses a system with DS-0 channels to carry an ISDN connection with DS-0 channels

containing the ISDN B and D-channels (col. 3, lns. 64-col. 4, lns. 5). The system of Humphrey

could be modified so that the DS-0 channels can be used to carry ISDN the two B and one D

channels, which are standard to ISDN. At the time the invention was made, it would have been

obvious to \one of ordinary skill in the art to combine the system of Humphrey, with the ability

to support ISDN B and D-channels. One of ordinary skill in the art would have been motivated

to do this since ISDN technology can be used to provide dynamic bandwidth allocation between

switched data and unswitched data on the local loop (col. 4, lns. 5-10).

12.   Claims 34-36, 43, 44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Humphrey in view of Irwin (USP 5,862,136).

        - Referring to Claim 34, Humphrey discloses a method for communicating control traffic

between elements in a telecommunications node, comprising: generating a frame at a first node

element (Fig. 12), the frame comprising routing and administrative data (an internode

communication channel, col. 5, lns. 9-23); generating a control message at the first node element;

inserting the control message into the frame header with routing and administrative data

(internode communication channel) of the frame; transmitting the frame on a synchronous bus to

a switch element; and synchronously switching the control message in the internode

communication channel to a destination element based on the position of the bits in the device

address field control message in the frame header (internode communication channel, col. 5, lns.

55-col. 6, lns. 7). Humphrey does not expressly disclose that the control messages are free of

addressing information. Irwin discloses a system routes the incoming data to any outgoing

channel without any routing information. The incoming data is routed by its position in the

TDM frame (col. 4, lns. 33-46). The system of Humphrey could be modified so that the control

data in the frame header would be sent to its destination based on its position in the header. At

the time the invention was made, it would have been obvious to one of ordinary skill in the art to

combine the system of Humphrey, with the ability to route control information based on its

position in the header. One of ordinary skill in the art would have been motivated to do this

since eliminating the address field reduces the overhead in the frame header for control

information. Eliminating the routing field allows more room for control information in the

header, therefore increasing the efficiency of the control data transfer.

- Referring to Claim 35, Humphrey discloses the method of Claim 34, wherein the source

and destination node elements each comprise a line card (col. 5, lns. 55-col. 6, lns. 7).

- Referring to Claim 36, Humphrey discloses the method of Claim 34, wherein the source

and destination node elements each comprise a processor on disparate cards (col. 5, lns. 55-col.

6, lns. 7).

- Referring to Claim 43, Humphrey discloses a traffic processor for a line card of a

telecommunications node, comprising: a computer-readable medium; and software stored on the

computer-readable medium (col. 17, lns. 20-30), the software operable to generate a frame

comprising a plurality of bus slots (service channels) and a frame header (an overhead portion)

having routing and administrative data (an internode communication channel) in a service traffic

portion to generate control traffic destined for a disparate element in the telecommunications

node (Fig. 12, col. 5, lns. 9-22), to insert the control traffic into the frame header slot (in the

internode communication channel) associated with the disparate element, to insert traffic

received at a port into the service channels, and to transmit the frame on a point-to-point link of a

synchronous bus (col. 5, lns. 55-col. 6, lns. 7). Humphrey does not expressly disclose that the

control messages are free of addressing information. Irwin discloses a system routes the

incoming data to any outgoing channel without any routing information. The incoming data is

routed by its position in the TDM frame (col. 4, lns. 33-46). The system of Humphrey could be

modified so that the control data in the frame header would be sent to its destination based on its

position in the header. At the time the invention was made, it would have been obvious to one of

ordinary skill in the art to combine the system of Humphrey, with the ability to route control

information based on its position in the header. One of ordinary skill in the art would have been

motivated to do this since eliminating the address field reduces the overhead in the frame header

for control information. Eliminating the routing field allows more room for control information

in the header, therefore increasing the efficiency of the control data transfer.

- Referring to Claim 44, Humphrey discloses the traffic processor of Claim 43, the

software further operable to insert synchronous and asynchronous traffic into the bus slots

(service channels, 18, lns. 50-60).

- Referring to Claim 46, Humphrey discloses the traffic processor of Claim 43, the

software further operable to insert an asynchronous transfer mode (ATM) cell into a set of bus

slots (service channels) associated with a destination element for the ATM cell within the

telecommunications node (col. 18, lns. 50-60).

13.   Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey and

Irwin in further view of O'Connell et al (USP 5,398,234). Referring to Claim 45, Humphrey

discloses the traffic processor of Claim 43, the software further operable to insert DS-0 traffic

into a bus slot (service channel), but does not expressly disclose also inserting a current channel

associated signaling (CAS) value for the DS-0 traffic. O'Connell discloses a system with a DS-0

connection with a CAS value (abstract, col. 1, lns. 1-30). The system of Humphrey could be

modified so that the DS-0 channels have channel associated signaling. At the time the invention

was made, it would have been obvious to one of ordinary skill in the art for the DS-0 connection

to have a CAS value. One of ordinary skill in the art would have been motivated to do this since

is can be used for digitizing voice in-band signaling not normally used for data transmission
(abstract).

14.   Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey and

Irwin, in further view of Rustad (USP 6,009,106).

        - Referring to Claim 47, Humphrey discloses the traffic processor of Claim 43, the

software, further operable to insert integrated services digital network (ISDN) traffic into a set of

service channels. Rustad discloses a system with DS-0 channels to carry an ISDN connection

(col. 3, lns. 64-col. 4, lns. 5). The system of Humphrey could be modified so that the DS-0

channels carry ISDN traffic. At the time the invention was made, it would have been obvious to

one of ordinary skill in the art to combine the system of Humphrey, with the ability to support

ISDN. One of ordinary skill in the art would have been motivated to do this since ISDN

technology can be used to provide dynamic bandwidth allocation between switched data and

unswitched data on the local loop (col. 4, lns. 5-10).

                              Response to Arguments

15.   Applicant's arguments filed 07/14/03 have been fully considered but they are not

persuasive.

        - In response to the argument on page 12, lns. 21-22, the applicant argues that Humphrey

fails to teach a service channel in at least one frame individually transporting traffic for a DS-0

connection. The Examiner respectfully disagrees. Figures 12 and 13 show examples of ingress

and egress frame formats containing multiple bus slots. The format of a synchronous bus slot in

the frame is shown in figure 15. The synchronous bus slot has subchannels that can carry 48

individual 10-bit channels of DS-0 data (col. 16, lns. 35-42). The Examiner interprets the bus

slots with the subchannels to be the service channels in the frame. The subchannels are capable

of supporting individual DS-0 connections. The Examiner concludes that Humphrey does teach

the claimed limitation.

- In response to the argument on page 12, lines 11-12, the applicant argues that

Humphrey fails to teach a set of service channels in the frame together transporting an ATM cell.

The Examiner respectfully disagrees. A set can contain one or more items. A single bus slot can

be considered a set. Humphrey teaches using a bus slot with an iMPAX packet layer datagram to

carry an ATM cell (col. 15, lns. 50-60). The Examiner interprets a single bus slot to be a set of

service channels to transport an ATM cell. Additionally, Figure 16 shows an iMPAX packet

layer subframe that can be used to transport an ATM cell (col. 15, lns. 50-60, col. 16, lns. 42-col.

17, lns. 5). The IPL Datagram Payload is a set of 53 bytes used to transport an ATM cell. The

Examiner interprets the set of 53 bytes of IPL datagram payload to be a set of service channels to

transport an ATM cell. The Examiner concludes that Humphrey does teach the claimed

limitation.

- In response to the argument on page 13, lns. 30-31, the applicant argues that Humphrey

fails to teach generating a control message at the first node element, the control message being

free of addressing information. The Examiner agrees that Humphrey does not disclose the

limitation that the control message is free of addressing information; however, this limitation was

not in the original set of claims. New rejections have been given to the newly amended claims

34 and 43 that have this limitation.

Conclusion

16.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

17.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Christopher M Swickhamer whose telephone number is (703)

306.4820. The examiner can normally be reached on 8:00-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ricky Ngo can be reached on (703) 305.4798. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 872.9314 for regular

communications and (703) 872.9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305.3900.

CMS

September 3, 2003

RICKY NGO

PRIMARY EXAMINER